

Responses to Comments Received During the Public Notice Period  
on Draft WPCP NEV0092105 for the Robinson Operation

Comments from Tom Myers on behalf of Great Basin Mine Watch, received electronically on February 11, 2005

Tom Myers/GBMW: Please send responses both to GBMW and to me at the address above. Also, please add my address above to the list for receiving water pollution control permit applications (new and renewal) only to your mailing address.

NDEP Response: This request has been forwarded for addition of 200 Bartlett St., Reno, NV 89512 to the BMRR-Regulation mailing list. GBMW is currently on the mailing list.

Tom Myers/GBMW: The Fact Sheet provides a reasonable description of the mining operation, but it leaves out many details of the history. These include discussion of the historic dewatering, the current extent of contamination (although it appears this is currently being reassessed), and the compliance history.

NDEP Response: The Mining Regulations, Nevada Administrative Code (NAC 445A.350 - 445A.447) were promulgated (i.e. became effective) in May 1989. Pursuant to NAC 445A.401, the Fact Sheet is required to: (1) Identify the location of the facility, (2) Describe the proposed sources, (3) Provide a description of the facility and monitoring systems, (4) Identify the probable receiving water; and (5) Describe the procedures for public comment. While the Fact Sheet may often provide a valuable reference to various site activities, a history of the site (in this case beginning around the Civil War) is not specifically required by the NAC. However, additional information regarding the history and operation may be found within BMRR files which are available for public review.

Tom Myers/GBMW: The permit allows the mine to process up to 17.5 million tons of ore per year (Draft permit, page 1). This implies that only processing, probably of spent tailings, will (continue to) occur. But the fact sheet indicates that the historic pits will continue to be mined. I did not find clarification of this in the application documents. Please discuss which pits will be mined. This is essential information for assessing and understanding the geochemistry of the ore which of course affects the geochemistry of potential seepage from the tailings impoundment.

NDEP Response: Processing, according to this renewal application, will not consist of the reprocessing of any spent tailings. Mining for ore is currently occurring in the Veteran/Tripp Pit, which will be the source of ore for roughly five years (the effective timeframe of this permit) according to Quadra Mining Ltd. The Fact Sheet reflects information submitted in the renewal application, and correctly states that historic pits will continue to be mined. With respect to the specific historic pits to be mined following the Veteran/Tripp Pit and any future pit sequencing, that information will be presented at the appropriate time, most likely with future applications for permit modifications or renewals.

Tom Myers/GBMW: The draft permit requires that the operator implement “the four-step Protocol of Section 5.2 of the “Work Plan: Robinson Operation, 2/27/1997”, as required by Section VI of the “Robinson Property Consent Agreement and Order, 2/25/1997”. The Fact Sheet should mention this and explain what the consent agreement and order and work plan are for.

NDEP Response: As noted in a prior comment above, this type of information is not specifically required by NAC to be included in the Fact Sheet. However, this information is on file at the BMRR and available for public review.

Tom Myers/GBMW: The draft permit includes a substantial list of schedule of compliance items. The Fact Sheet should actually explain what these relate to and why they are required.

NDEP Response: While this specific type of information is not considered a Fact Sheet requirement under NAC 445A.401, the Fact Sheet was reviewed for information regarding why the schedule of compliance items were included and what they respectively relate to. The review determined that this information is generally included in the Fact Sheet. For example, the pit lake requirement is addressed in the Fact Sheet as, “All mined areas must meet the requirements of NAC 445A.429”. Additional information regarding what this relates to and the specific requirements, can then be found by referencing the regulatory language in NAC 445A.429. Additionally, the project documentation on file with NDEP is available for public review and may provide the reader with specific details concerning the respective action items.

Tom Myers/GBMW: The draft permit does not establish permit limits for the monitoring wells at all. The entire section I.G fails to mention anything about water quality standards or what may constitute degradation of groundwater. The background chemistry study apparently establishes the standards for use in this permit which means the very essence of the permit will be established in a SOC.

NDEP Response: The primary purpose of the monitoring wells is to clearly establish and ascertain maintenance of groundwater quality. The permit requires a “zero discharge” standard of performance in order to maintain existing groundwater qualities. As such, establishing monitoring well limits is not appropriate.

Tom Myers/GBMW: Most if not all of these SOCs should have been required as part of the renewal application so that the public has the chance to formally review them.

NDEP Response: The NDEP appreciates the commentor’s concern for the availability of all information and completed site actions for public review during the permit renewal process. However, the inclusion of compliance schedules within WPC Permits has proved an effective and efficient means in which to ensure that the necessary site actions, associated plans, and revised information are properly obtained. All information submitted to the NDEP pursuant to a permit SOC item is available upon receipt for public review and comment. That stated, the BMRR is placing a greater emphasis with applicants to ensure that all feasible updates of operating plans and warranted information is submitted as part of renewal applications and/or available for public review during the public comment period.

Tom Myers/GBMW: The application is missing important information concerning the monitoring wells. Table 6-1 in the Fluid Management and Monitoring Plan shows the compliance monitoring wells but does not indicate what their screen levels are or provide any other information regarding the wells other than what they directly monitor. In contrast, Table 6-2, which shows wells that will no longer be monitored, shows the screen levels. Please provide a list of the wells and their screen depths in the final fact sheet.

NDEP Response: A comprehensive list of all wells and their respective screen depths, particularly for a site as large as Robinson, is beyond the scope of what can reasonably be included in the Fact Sheet.

However, the well information and other technical details, are on file at BMRR and available for public review.

Tom Myers/GBMW: Perched aquifers could be a conduit for flow to deeper groundwater and a conduit for flow among blocks and to offsite receptors. Various potential contaminant sources...could seep to perched aquifers. Any studies of remediation should include an assessment of perched aquifers.

NDEP Response: Comment noted.

Tom Myers/GBMW: Water Quality...

Monitoring wells W-9A and W-9B show elevated concentrations of TDS and sulfate although values at W-9A are about 50% higher than at W-9B. ...The closest and most likely source is the Keystone dump. This has not been identified as a mining impacted water source, but should be.

Monitoring well W-6B, also in the Ruth North block, shows elevated concentrations of TDS, sulfate, iron and manganese. It is northeast of the Keystone dump but has lower groundwater levels than W-9A and W-9B and could be affected by the same source. There are also the Keystone dump sediment ponds as potential sources.

Well WCC-G1 shows substantially elevated concentrations of nitrates. This well is in the Giroux Wash block downstream from the tailings impoundment and from the seepage collection units.

Wells W-4A and W-4B show substantial exceedances of TDS, sulfate, magnesium, and manganese. These wells are in the Ruth Mineralized block.

Well R-A shows substantially degraded conditions in the Robinson Canyon block. ...The permit has a schedule of compliance item requiring Quadra to "characterize and delineate the magnitude, depth and lateral extent of groundwater constituent exceedances in the vicinity of monitoring well R-A; identify and mitigate the source(s) of contamination; propose remedial actions to capture, contain, and prevent further migration of the contamination". These exceedances were observed years ago, therefore this requirement, while necessary, is tardy.

Well R-H in the same block has similar concentrations of some of the same contaminants.

Former monitoring well R-1,...located in the southwest quarter of section of section 35, Township 17N, Range 62E, has been contaminated by nitrate and sulfate. ...nitrate has trended up and sulfate has been high for at least 10 years. ...The high concentrations were first observed in 1992 and possibly much earlier.

Please explain in the response to this comment why the contamination associated with wells R-H, W-9A, W-9B, W-6B, WCC-G1, W-4A and W-4B should not receive the same level of characterization and remediation as well R-A.

NDEP Response: The NDEP acknowledges that concentrations in various monitoring wells including W-9A, W-9B, W-6B, WCC-G1, W-4A, W-4B, R-A, and R-H indicate certain constituent concentrations higher than drinking water standards. However, these concentrations may be a result of historic mining and past processing, and/or may be naturally occurring. Various historic Mine Impacted Waters (MIWs) and probable sources have been identified to date. Well R-A is included in an on-going effort to identify and mitigate historic MIW's and the respective historic sources. Numerous documents are on file with NDEP that evaluate, study, and provide on-going mitigative plans for these historic MIW sources. These documents are considered part of the permit documents and include Site Characterization Plans (SCP's) and Engineering Design Reports (EDR's) that provide the necessary methodical approach to address mitigation of the possible historic impacts. However, generally speaking, available data (post 1989) indicates the concentrations in these wells have remained "stable" or "consistent" through time. This is being confirmed through routine monitoring of the groundwater wells designated in the permit.

In regard to referenced nitrate levels in Well WCC-G1 at the Giroux Wash, it should be noted that nitrate concentration in the tailings has typically measured less than 10 mg/L. Additionally, the high nitrate levels were measured in WCC-G1 prior to construction of the tailings facility, effectively eliminating the permitted mine facility as the potential source.

It should also be noted that Well R-1 is not included in this Water Pollution Control Permit because it was determined in 1997 by the Geomega evaluation to be "...hydraulically upgradient of mining facilities and planned operations..." and additionally that Well R-1 "has no relation to permitted components". Well W-6B, downgradient of the Keystone Dump, is the nearest mine site monitoring well to R-1; and it has low nitrate concentrations (<1mg/L), indicating that the Keystone Dump or other upgradient mine facilities are not the source of elevated nitrate at R-1. The BWPC has previously responded to the potential concerns regarding this domestic well, and as such, further reference here would be outside the scope of this permit.

Tom Myers/GBMW: If background truly means pre-mining conditions, the use of background conditions for standards is reasonable. Background does not need to be pristine however because other activities may have occurred at the site for which the mine is not responsible. Background should represent conditions that would occur at the site if the mine had never been built and should reflected the highly mineralized conditions...GBMW supports the determination of true background conditions and their use as standards if such conditions can be determined. ...Please describe how these "background" wells were chosen. Being the well in a particular block that has the "best" water quality does not make them background. ...It appears the establishment of background water quality is ongoing. ...Neither the fact sheet, application nor draft permit indicate what the background water quality will be used for. Please clarify. Will these be the new permit limits for the monitoring wells within each block?

NDEP Response: The NDEP acknowledges and appreciates GBMW's support for the determination of true background conditions. The objective of the on-going data collection is to better establish the existing background groundwater quality at the site. Monitoring wells included in this permit were previously established by the Geomega evaluation completed in 1997 under the Phase A and Phase B monitoring program. However, it should be noted that background groundwater qualities must be utilized judiciously, taking into account all available data, to determine if degradation may be indicated at specific groundwater monitoring points as a direct result of a current mine activity. This is particularly true with the Robinson Operation, given the historic mining activity dating back into the 1800's and the documented local variation in existing groundwater quality. Compliance determinations will be appropriately focused where potential exceedances of the background groundwater qualities are pronounced and are a clear reflection of mine sources and/or activity. It is the NDEP's intent, that pursuant to applicable regulations and specific permit requirements, that current mine components are designed, constructed, operated and maintained in accordance with the "zero discharge" standard of performance.

Tom Myers/GBMW: Presuming the background quality will be the target towards which this, and future, operators must remediate the groundwater, the establishment of background must be credible. Merely reviewing past data of wells that may have been affected by mining does not establish background conditions and is probably not defensible. The background determination may require a detailed modeling study of the geochemistry to back-out the background conditions... GBMW requests to be notified when the study required under a "schedule of compliance" regarding background conditions becomes available and to have the opportunity to formally review its analysis and recommendations.

NDEP Response: Pursuant to Schedule of Compliance Item I.B.1 in the Permit, the NDEP anticipates the referenced study should be available for public review in June 2005.

Tom Myers/GBMW: Intera Drain: This drain collects seepage from the historic copper leach dumps and therefore contains poor quality water...The drain is pumped to prevent substantial standing water and to “maintain a draw down zone in (sic) the drain location”... Is this drain lined?... NDEP should require the installation of vadose zone monitoring beneath the drain to determine whether it leaks and to plan to remediate it if it does leak.

NDEP Response: The Intera Drain is lined. Additional information regarding the water quality and monitoring program is on file at the NDEP and is available for public review.

Tom Myers/GBMW: The PCES indicates the flow from the [Green Springs] seep has significantly decreased since the pond was built (but failed to mention the poor quality). Why has this occurred?

NDEP Response: The overdumping of the Green Springs MIW is believed to have resulted in the decreased flowrate.

Tom Myers/GBMW: The plans for closing the gold heaps, especially in light of the leakage and poor water quality discussed above, appear to be insufficient. The current plan appears to be to rinse with water and possibly to overdump newly mined waste rock from the Ruth Pit. Prior to overdumping, stabilization “to the extent necessary” will occur to the heaps... Do the standard requirements for WAD cyanide and pH apply if the heaps are covered?

NDEP Response: This comment makes reference the Tentative Plan for Permanent Closure(TPPC), which by its very intention is only ‘tentative’. Pursuant to NAC 445A.447, a final plan for permanent closure is required at least two years before the anticipated permanent closure of a component. Please see the Final Permanent Closure Plan, dated August 2004, which was submitted to the NDEP and is also available for public review. Pursuant to NAC 445A.430, there are three alternatives to achieving “stabilization”. Therefore, the WAD cyanide and pH requirements under NAC 445A.430.1 may not be applicable, provided that acceptable stabilization can be achieved through one of the alternative approaches allowed by NAC 445A.430.2 and 445A.430.3. However, alternative approaches, such as covers, must clearly demonstrate that the component will be “stabilized” and will not result in degradation of the waters of the State.

Tom Myers/GBMW: Please describe the testing completed and/or assumptions made to arrive at this seepage rate for the tailings.

NDEP Response: The 1994 Final Environmental Impact Statement relied on the 1994 PTI model, which indicated a tailings permeability of  $1 \times 10^{-6}$  cm/s for impounded tailings. This tailings permeability is referenced in the 1997 Geomega model, with the 1994 PTI model cited. This permeability is consistent with industry publications, such as Mittal & Morgenstern (1976). However, additional field investigations to obtain on-site empirical data were performed to determine the actual infiltration rate prior to developing the 1997 Geomega model. These investigations included three angle boreholes that were drilled through the tailings and into underlying soils. Results indicated a maximum infiltration of 18-inches during the first year of tailings deposition, which correlates to approximately  $1 \times 10^{-6}$  cm/s.

Tom Myers/GBMW: The closure of the tailings must include groundwater remediation of the existing contamination (see above). Closure must include a water balance barrier designed to stop long-term seepage and plans to monitor the movement of the wetting front for as long as necessary (vadose zone monitoring). Studies should be completed to determine whether the tailings should be pumped dry, both as remediation and for closure, to protect the underlying groundwater.

NDEP Response: Comments noted. However, as referenced in a prior response, it should be noted that the information on file regarding the quality of the groundwater beneath the impoundment indicates that nitrate concentrations, exceeding the drinking water standards, were identified upon drilling WCC-G1, but prior to any tailings deposition.

Tom Myers/GBMW: The section on closure of the pit lakes indicates that the fact the lakes are terminal will be relied upon to avoid degradation of groundwater. SRK (1999) presented data showing that the pit lakes as they form presently are contaminated. At the Ruth Pit, the water quality is bad as shown by the series of concentrations shown for pH, TDS, cadmium, fluoride, copper, manganese, and sulfate in Table 5.5 of SRK (1999). It appears from the data in SRK (1999), unless further lake development will somehow improve the water quality that the lakes will remain a long-term threat to avian health. The closure plan must consider this. Also, because of the quality of the existing water, any future predictions of improved water should be reviewed with a dubious eye. Now is the time to plan for the future of these lakes.

NDEP Response: Comments noted. NDEP has incorporated Schedule of Compliance item Part I.B.4 into the WPC Permit to ensure that all mined areas resulting in the formation of pit lakes do not release contaminants that have a potential to degrade waters of the state. This is an update of the August 1999 pit lake evaluation. Pursuant to the expressed SOC language and in conformance with NAC445A.429, the plan and procedures must also ensure that bodies of water which are a result of mine pits penetrating the water table must not create an impoundment which has the potential to affect adversely the health of human, terrestrial or avian life.

Tom Myers/GBMW: The only way to know is to test the ore, waste rock and groundwater for uranium and radioactivity. Uranium should be added to all testing procedures including NDEP's profile 1 analysis at this, and all copper mines in Nevada. Perhaps, if no uranium is found in one test, uranium could be dropped from future testing. Testing is the only way to know whether a problem exists. Now is the time to avoid creating a Yerington at Ely.

NDEP Response: Comment noted. The Profile I monitoring list in this permit has been modified to include uranium. At such time that sufficient data is obtained from the site monitoring as required by the issued permit, Quadra Mining Ltd may request a reduction in the number of elements and/or frequency of analyses, based on justification other than cost.

Comments from the U.S. Fish & Wildlife Service Received on January 31, 2005

U.S. Fish & Wildlife Service: Section I.B.4 of the draft permit, under the Schedule of Compliance, indicates that the pit lake plan will be submitted to NDEP by August 1, 2005. We ask that you provide a copy of this plan to our office for review and comment, upon its receipt. We trust that the plan will include data on pit lake water quality. We are concerned about conditions at pit lakes because they may be used by migratory birds and other wildlife, which may be exposed to various metals and trace elements through drinking the water and through the ingestion of food from the lake. Various food items in the water may bioaccumulate such contaminants, increasing potential exposure to migratory birds and other wildlife. The collection and analysis of food items from pit lakes is needed to assess risk to migratory birds and other wildlife.

NDEP Response: Upon receipt by the NDEP, the referenced Pit Lake Plan will be available for public review and copy at the BMRR offices. As feasible, additional copies of the plan may also be requested of Quadra Mining Ltd.

U.S. Fish & Wildlife Service: We are concerned with water quality in springs and seeps at the mine at these sites may be water sources for birds and other wildlife. We therefore support continued efforts to reduce the infiltration of precipitation into various source areas, such as waste rock and leach heaps, to reduce flows from springs and seeps.

NDEP Response: Comments noted. The NDEP shares concern for mine impacted waters and appreciates the stated support of continued site efforts.

U.S. Fish & Wildlife Service: We are concerned with the absence of uranium in the list of constituents in Profile I that are required to be monitored. We are uncertain as to whether uranium is consistently found in copper ore. However, it seems prudent to obtain more information on the presence or absence of uranium at the Robinson Operation. Therefore, we recommend that uranium be added to the Profile I list of constituents for monitoring at all locations at the Robinson Operation or at least in waste streams for at least one year. If the resulting data show no sign of problems, then uranium could be dropped from the Profile I list of constituents.

NDEP Response: Uranium has been added to the Profile I list.

Comments from Quadra Mining Ltd. Received on February 14, 2005

Quadra Mining Ltd.: Robinson Nevada Mining Company (RNMC) requests that NDEP-BMRR consider adjusting due dates for the SOC items commensurate with any delays to the permit issuance date. RNMC also urges NDEP-BMRR to provide extensions to the due dates for any SOC item for which there are adjustments to the SOC language.

NDEP Response: Appropriate adjustments for SOC due dates have been incorporated into the issued permit. Extension of the SOC due dates may be considered by the NDEP upon formal request submittal by the Permittee and with good cause.

Quadra Mining Ltd.: RNMC concurs with the intent of SOC Item I.B.3 but is concerned with NDEP-BMRR's lack of acknowledgement of previous studies performed in this area and the results of those studies indicate that RNMC may not be able to meet all the requirements of this SOC item. RNMC's reference to the prior studies is intended to point out that substantial investigation has already been completed and that this starting point for further investigations should be acknowledged by NDEP-BMRR and used to direct further investigations.

NDEP Response: NDEP acknowledges the previous studies performed in the area of Well R-A, as well as the results of those studies. The investigations that have already been completed should be utilized as a starting point for further investigations, and in part, to guide and provide further direction on this matter. The NDEP-BMRR will continue to provide consideration of the information provided by Quadra Mining Ltd and its consultants. However, it is NDEP's intent to ensure that the objectives established in the schedule of compliance are appropriately achieved.

Quadra Mining Ltd.: Part I.D.6: Please change the nomenclature for the Barge Operating Channel sample collection point from the existing "TS-BOC" to "TS-SBOC".

NDEP Response: "TS-BOC" has been changed within the Permit to "TS-SBOC".

Quadra Mining Ltd.: Part I.D.20 Footnote (3): This standard permit language needs to be modified in the case of the Robinson Operation. Specifically, if static tests on a non-acid generating rock type yield results that indicate it may be acid generating, this unexpected result should be targeted by the

requirement to notify NDEP-BMRR and perform kinetic testing. Therefore, RNMC urges NDEP-BMRR to adjust the language in the first paragraph of Footnote (3) to reflect the more appropriate testing requirements described above.

NDEP Response: NDEP has modified the standard permit language to:

When static testing characterization of material indicates that a rock type not previously recognized and managed as acid generating has the potential for acid generation as set forth in the Division's guidance document "Waste rock and Overburden Evaluation" (dated September 14, 1990), the Permittee shall notify the Division in writing and initiate kinetic testing on the potentially acid generating portions of this rock type within ten (10) days.

Quadra Mining Ltd.: Given these circumstances, RNMC recommends removing the LCRS monitoring requirements for the BSPLD-1 and replacing the LCRS monitoring with a requirement to use this pipeline for transferring freshwater only.

NDEP Response: NDEP concurs with the recommendations and has modified the permit accordingly to stipulate monitoring requirement when transferring process solutions.

Quadra Mining Ltd.: However, the strict flow limitations applicable to process pond LCRS monitoring identified in this part should not apply to the Mill Water Storage Pond because only freshwater will be stored in the pond and the secondary liner and LCRS serve to ensure that the freshwater is retained in the pond system. Therefore, RNMC believes that an exception to the LCRS flow limitation should be considered for the Mill Water Storage Pond, and a new limitation provided that limits flow to the fluid removal capacity of the LCRS sumps. This could be phrased with the following language:

The daily accumulation of flow exceeding 150 gpd and 50 gpd averaged over the quarter and the year, respectively, in any one pond leak detection sump, except for the Mill Water Storage Pond, which may be used for freshwater only, the daily accumulation of flow exceeding the LCRS sump removal capacity.

NDEP Response: Comment noted. In the event that the permit limitations are exceeded, and if it can be demonstrated that the exceedance will not result in degradation of the waters of the state, a permit revision to adjust the respective limit may be considered at that time. However, any justification for increased volumes must be presented to NDEP for review.

Quadra Mining Ltd.: Part II.B.3.a: RNMC recommends that NDEP-BMRR insert the word "business" in this section as follows:

... and a written report shall be provided within ten (10) business days in accordance with Part II.B.4.b.

RNMC appreciates that NDEP-BMRR has included the 10-business day allowance at Part II.B.4.b, and since this part of the permit has primacy for directing the reporting requirement, no other changes are required. However, RNMC noticed in the public review draft permit that Part II.B.3.a is not consistent with Part II.B.4.b and making our suggested change will ensure that the reporting obligations are clear.

NDEP Response: Comment noted. Appropriate changes have been made to the Permit.